

TAYLOR (R.W.)

PRIMARY MELANO-SARCOMA
OF THE VULVA

BY

R. W. TAYLOR, M. D.

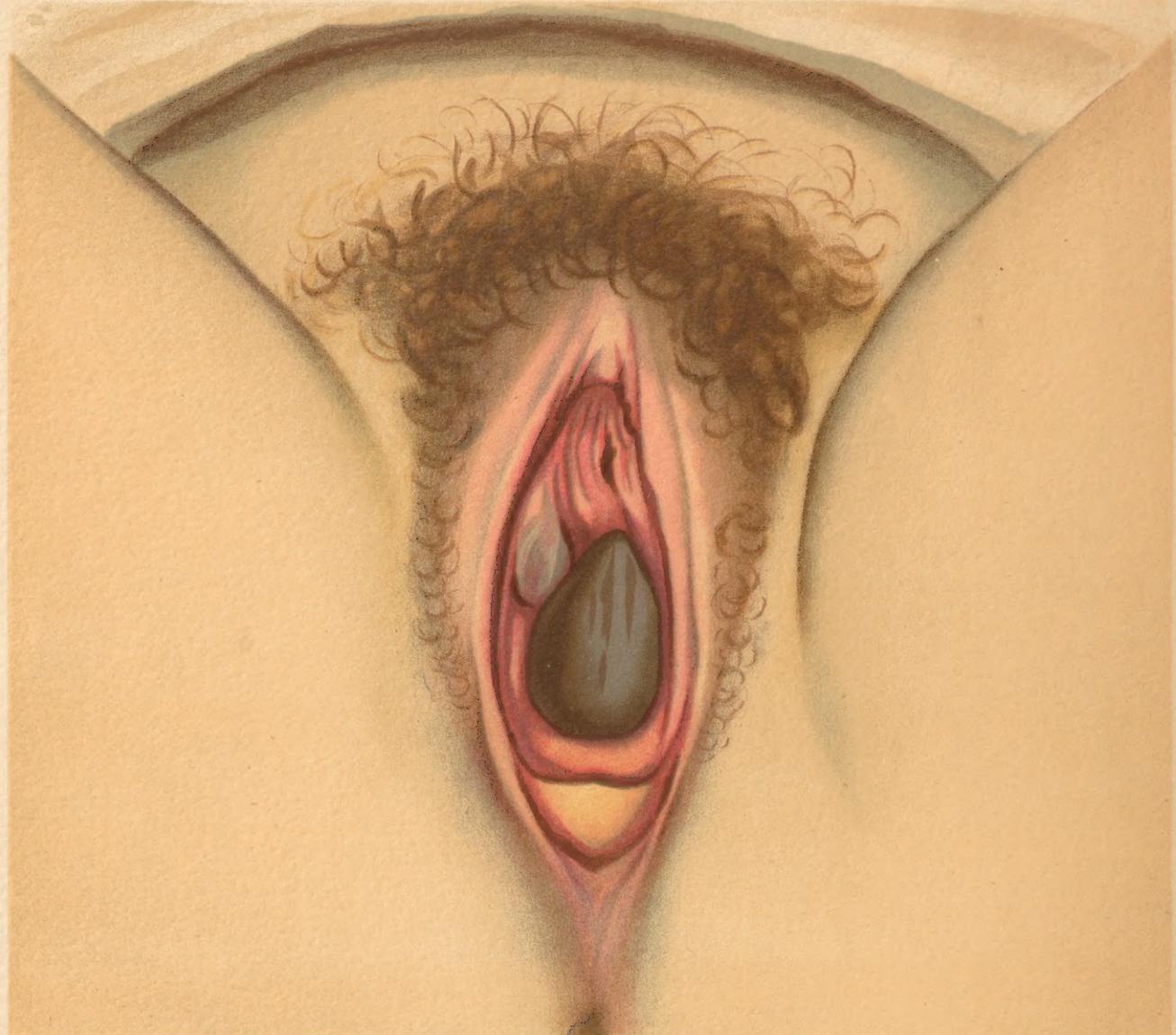
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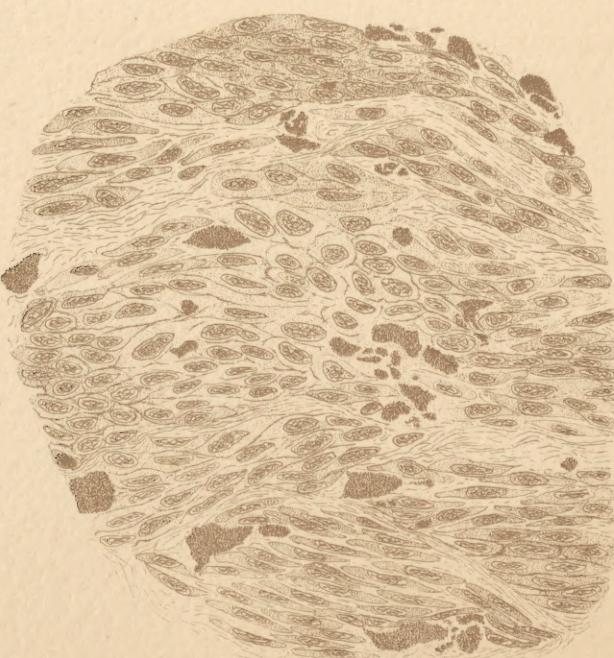


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DR. R. W. TAYLOR'S CASE OF PRIMARY MELANO-SARCOMA OF THE VULVA.



A SECTION OF THE LESS PIGMENTED PORTION

PRIMARY MELANO-SARCOMA OF THE VULVA.*

ALL forms of malignant new growths—epithelioma, carcinoma, and sarcoma—upon the external genitals of the female are of exceedingly rare occurrence. When found on these regions, they are usually primary lesions, and exceptionally they occur as secondary deposits, or, still more rarely, by extension downward from the internal genital tract. While epithelioma of the uterus is far from common, it has been noted that from thirty-five to forty cases of it occur to one of the same disease of the external parts, yet epithelioma takes first place in the order of frequency of malignant new growths of the vulva. In medical literature the histories of so many cases of epithelioma of the vulva are given that its history and course are tolerably well known, and it has ceased to be a clinical rarity. Carcinoma and sarcoma of the vulva are exceedingly rare, and an extended study of the meager statistics relating to them seems to warrant the conclusion that the former is more frequent than the latter in the proportion of two to one. An attentive study of the literature of these cases is exceedingly disappointing, since their history is given in a very fragmentary manner, and a sharp definition of the nature of the cases is not made. In truth, much has yet to be added to our stock of knowledge of primary carcinoma of the vulva, and the same may be said, in the main, of primary sarcoma of this region, of which there are less than six indifferently recorded cases. Coming now to melano-sarcoma, the occurrence of which primarily in the eye, upon the skin, and in the viscera, can hardly be called common, we find but six satisfactory cases on record (and very vague mention of the subject in a few text-books) in which this new growth began upon the vulva. Primary melano-sarcoma of the vulva, therefore, may be considered as among the rarest of all forms of malignant new growths of these parts.

In this connection it is necessary to emphasize the fact that a number of cases of melanosis of the vulva have been reported which are really instances of melanotic carcinoma. The result is that confusion exists in the minds of many who have not clear ideas of these two forms of malignant new growths. The word "melanosis" should, therefore, be discarded since it is so misleading. Melanotic carcinoma has its origin in the epithelial structures; melano-sarcoma, like simple sarcoma, is a disease of the connective tissue.

In this essay I shall give the history of a personal case of primary melano-sarcoma of the vulva, and a synopsis of the cases of Göth,* Terrillon,† Müller,‡ Haeckel,§ Bailly,|| and Fischer,¶ all thus far reported, with the hope of throwing light upon the subject.

Melano-sarcoma of mucous membranes should be studied with the aid of our knowledge of similar conditions in the skin, since between the course of the two there are many analogies, though the disease of the mucous membranes is lacking in the rich objective symptomatology of its dermal congeners. It is important in this study to remember the following primary modes of development of melanó-sarcoma:

1. The primary melano-sarcoma of the skin, which begins as one nodule, or as several small ones, on a pigment, mole or freckle, a vascular nævus, or on any congenital abnormality of the skin, or cutaneous outgrowth, upon or in consequence of any chronic hyperplastic process of the skin or as a result of mild or severe injury to a part. In all of these instances irritation or traumatism seems to be an important and essential factor.

2. The primary local melano-sarcoma, which may or may not become disseminated, which, from a want of knowledge of the causes which produce it, may be called idiopathic, and is sometimes of congenital origin. This form is akin to the first type.

3. The simultaneous multiple idiopathic melano-sarcoma, which, as a rule, begins upon the hands and feet, and from these regions invades the body, which has been called "Kaposi's" type, and is regarded by that observer as a general morbid affection from the very outset. In exceptional cases the disease begins, in unique form, elsewhere than upon the extremities, particularly on the various parts of the face and the trunk.

* "Pigmentsarkom der äusseren Genitalien," "Centralblatt für Gynäkologie," October 1, 1881.

† "Mélanose généralisée ayant débuté par une petite lèvre de la vulve," "Annales de gynécologie," July, 1886.

‡ "Zur Casuistik der Neubildungen an die äusseren weiblichen Genitalien," "Berliner klin. Wochenschrift," No. 31, 1881.

§ "Ueber melanotische Geschwülste der weiblichen Genitalien," "Arch. f. Gynäk.," xxxii, 1888, pp. 400 *et seq.*

|| "Tumeurs mélanoïques de la vulve," "Gaz. hebd. de méd. et de chir.," 1868, No. 47, pp. 740 *et seq.*

¶ "Ueber die Ursachen der Krebskrankheit und ihre Heilbarkeit durch das Messer," "Dtsch. Ztschr. f. Chir.," xiv, 1880-'81, pp. 548, 550.

4. Melano-sarcoma originating in the uveal tract (the choroid and its duplicatures).

5. Melano-sarcoma beginning in any of the viscera or in lymphatic ganglia (unusual).

6. Melano-sarcoma of the mucous membranes, conjunctiva, mouth, vulva, and penis.* This type is most frequently seen in the form of secondary deposits (using the word "frequently" with a due appreciation of the rarity of these growths). As a primary disease it is of great rarity, and as a type it should be classed with its kindred growths, outlined in subdivisions 1 and 2 (*vide supra*).

In a general way it may be stated that the conditions inherent in the tissues to the development of melano-sarcoma vary in progressive degrees, according to the amount of pigment which normally exists in them. For example, the uveal tract (the choroid and its folds) is the seat of by far the largest number of these new growths; the skin is much less frequently affected, and the mucous membranes much more rarely than the skin, in all of which tissues there is a decreasing ratio of pigment.

CASE I—Personal.—Mrs. X., aged sixty-two, the wife of a well-to-do merchant, mother of five healthy daughters, came under my care June 1, 1887. She had always enjoyed good health, had never suffered any injury to her genitals, nor, to her knowledge, had there been any abnormal condition of them, even slight. Her family history was excellent, and cancer was unknown in her family. The history obtained was as follows: About two years previously (she being then sixty years old), she experienced a slight smarting sensation in the vulva, and several times saw a little bloody stain on her under linen. She then noticed a bluish streak in the sulus between the large and small labium of the left side. This was followed in a few months by a small, round tumor, which was seated on the same side near the meatus urinarius, and, in a short time after, by a small pea-sized tumor to the right of the meatus. At this time there was a painful lump in the right groin. The vulvar lesions were pronounced to be cancer by Dr. Trenholme, of Montreal, who removed them with the knife in the latter part of June, 1886. The wound healed promptly, showing no trace of the neoplasm. About two months later she noticed a little blue spot to the right of the urethra, which grew rapidly until October of the same year, when it was excised by Dr. Trenholme. About this time it was observed that a marked swelling existed in the left groin, and it was thought that the lump in the right

groin had become smaller. About November of this same year another small blue, wart-like tumor was observed a little to the right of the meatus and extending to and along the upper right-hand margin of the introitus vaginae. From that date until June 1, 1887, a period of about eight months, this new growth increased in size, and about April a smaller growth began to the right and just above it, on that portion of the labium minus which draped off from the clitoris. The appearance of the lesions as I first saw them are well shown in the colored plate. The large tumor was of a bluish-black color, perfectly smooth, homogeneous, and slightly shining on its surface. It looked like a ripe plum, except that it was conical on its upper end, near the clitoris. It was about an inch and a half long by an inch and a quarter wide. Its structure was firm, but compressible with moderate force. It was firmly adherent to the mucous membrane on the right of the vaginal orifice, and its base, which was about an inch in diameter, encroached up to but did not involve the meatus urinarius. Traction upon the tumor caused elevation of the subjacent tissues with it. The tumor, thus growing on the right side of the vagina, inclined inward and stopped up the vaginal orifice like a plug. The smaller tumor was evidently seated well under the mucous membrane, which, being mildly stretched, allowed it by its translucency to shine through as an oval mass which was quite firmly fixed to the subjacent tissues. The two tumors were continuous with each other. There were no inflammatory complications, nor was there a particle of abnormal discharge. In the right groin were a number of hyperplastic ganglia matted together in a tumor of the size of a walnut. The left groin showed marked salience in its middle portion. Here was seated a hard, slightly lobulated, conical tumor, the base of which seemed fully three inches in diameter, and its obtuse apex protruded fully an inch above the normal plane, being covered with healthy skin. Examination showed that the hyperplastic ganglia were quite firmly adherent to the deep fibrous tissues, and that the mass could be moved slightly by sliding it, but could not be pinched up.

The vulvar lesions caused the patient much mental anxiety. The presence of the large tumor caused local uneasiness, especially on lying down, and it was a slight impediment to urination. The recurrence and persistent growth of the tumors, the thought that they were incurable, and the fears of possible untoward complications, preyed on the patient's mind and kept her in a state of constant terror. This was shown, in a measure at least, in her great emaciation, her want of strength and of appetite, and her troubled look. Both she and her husband insisted that the vulvar tumors should be excised. To the latter I explained that such an operation could only be palliative, and that the leaven of the disease would still remain in the infiltrated ganglia, which could not be operated upon with any certainty of thorough extirpation, and which would necessitate an operation-wound of some size. The fact of the former relapses was also emphasized, and the possibility of a similar recurrence dwelt upon. On the other hand, the amenability and accessibility of the tumors to ablation and the possibility of perfect healing (as we so frequently observe after the removal of sarcoma and pigment sarcoma) were also brought forward, and it was decided that the operation should be performed. This was done June 16th in the presence of Dr. Morrow and Dr. Trenholme. Having made traction upon the tumor, I snared it with a galvano-cautery wire, heated to a dull-red color, as near its base as I could get. When the wire was well imbedded in the tumor, the battery (which had just come from the maker's hands in supposed perfect condition) gave out. I then cut off the tumor just above the normal level of the labium minus, and proceeded to get the base away piecemeal. This was a long

* Primary sarcoma and melano-sarcoma of the penis are also very rare. After considerable search I have found the following cases: W. H. Battle describes ("Primary Sarcoma of Penis," "Trans. of the Path. Society of London," xxxvi, 1885, p. 271) a case of a man aged sixty. T. Holmes, in the same society's "Transactions," vol. xxiii, 1872, under the title "Melanosis of Penis," narrates the case of a man aged fifty-two. In Gross's "System of Surgery," sixth edition, p. 834, the case of a negro, aged forty-four, is given. In Guy's Hospital Museum a morbid specimen, removed by Golding Bird, is preserved.

My colleague, Dr. A. W. Stein ("Medical Record," May 21, 1887), has reported the case, with autopsy, of a man, aged thirty-three, with generalized melano-sarcoma, and with marked infiltration into the bladder, urethra, corpora spongiosa and cavernosa, testicles, and cord. No history of the primary development of the disease could be obtained.

The case of Démange ("Etude sur la lymphadénie," "Thèse de Paris," 1874) and Vidal has been quoted as an instance of primary melano-sarcoma of the glans penis, but its history shows that the disease began upon the extremities, and that in about three years the genital organ was attacked.

tedious task, and was best done with my thumb-nail by persistent but cautious gouging, scraping, and pinching manipulations. In this way I removed all of the morbid tissue and exposed the fascia, which looked as smooth-as one's palm. Care was taken that no minute specks or filaments of the neoplasm were left in the contiguous territory. The haemorrhage was very slight. The after-treatment consisted of scrupulous cleanliness and light dustings with iodiform, covered with simple gauze. Complete healing, which was accelerated toward the end by slight stimulation with nitrate of silver, took place in twenty-four days. Thereafter the site of the neoplasms showed a small, pinkish atrophic cicatrix.

The health of the patient improved in a marked manner. She regained her strength and spirits and became five pounds heavier than before the operation, one pound less than her maximum weight at any time. On her return from the country in October, I began the use of hypodermatic injections of Fowler's solution, which it had been my wish to commence in July. For a period of two months she received these injections in doses commencing at seven and ending at ten drops. She had one abscess during this time. The injections, made with great antiseptic care, were administered on the thigh and on parts as near as admissible to the large mass of ganglia in the left groin. By the patient's preference the arsenic was then given by the mouth for a month, and as it by this method also produced annoying symptoms, it was discontinued. The result of the three months' course of arsenic was the perceptible subsidence of the tumor, which became distinctly more movable and decidedly more lobulated on its superior surface. In December, 1887, the patient complained of coldness in the left heel; in June, 1888, her appetite began to fail. Then she had numbness in the leg and the corresponding arm, which was followed by slight loss of muscular power. This sensory and motor disturbance kept on apace. In April the right pupil became persistently enlarged, and there was right hemianesthesia of the face. The left-sided paralysis and the right-sided disturbances continued, marasmus supervened, and the patient died July 26, 1888 about thirteen months after the last operation, and three years from the date of invasion of the initial new growth. She was under the care of another physician in a distant city during the last six months of her life.

CASE II—Göth.—The woman, age not stated, first seen in February, 1882, had been healthy all her life, and never had borne children. For two years previous to date she had noticed the development of a tumor on the vulva which caused neither inconvenience nor pain. Göth found a rounded tumor of the size of the fist, of a bluish-black color, not sensitive to pressure, but with a tendency to bleed, and upon it several small ulcers dependent on the loss of epithelium. Close examination showed that the tumor was composed of a large upper and a smaller under flap, which fell together and appeared like a single tumor when the patient was in the horizontal position. The upper portion developed from the superior portion of the left labium minus, extended over the preputium clitoridis and down the right labium minus for a short space. Its length was 7 cm., width 5 cm., and thickness 2.5 cm. The small lower flap seemed to spring from the lower portion of the left labium minus. The growth reached backward to the posterior border of the vulva and ended in a number of digitate processes. The tumors were traversed by numerous superficial fissures, giving the under surface an uneven and the outer a lobular appearance. The presence of the tumor compressed and pushed the urethra out of its axis, and obstructed the vaginal orifice. The lymphatic ganglia were not enlarged, and the patient seemed in fair condition. Under chloroform narcosis, the upper flap was drawn firmly upward and forward, transfixated with a sharp-

pointed scalpel, and removed. The haemorrhage, though profuse, was, with some effort, controlled. The lower flap was removed by a deep incision, extending well into the posterior vaginal wall. Care was taken to clip away all suspicious filaments. Under careful antiseptic measures, perfect healing resulted in four weeks. Göth emphasizes the facts of (a) the relatively benign course of the new growth; (b) the absence of infiltration of lymphatic ganglia; (c) the non-recurrence of the disease five months after ablation.

I may add that it is a great pity that the report of the case was not delayed until five years after the operation.

CASE III—Terrillon.—An hysterical woman, aged sixty-two years, was admitted to the hospital April 28, 1885, suffering from mental derangement and hemi-anesthesia of the left side, and gave a confused history of moderate pain in the vulva, and of slight bloody discharge, both of recent date. Examination showed, on the right labium minus, a small tumor of the size of a large nut, firm, smooth on its surface, and absolutely black. It spread out by prolongations beyond its insertion, and was movable with the labium minus. Around the tumor the mucous membrane was of a uniform black color, studded with little patches of healthy tissue. This discoloration existed on the opposite labium, and was traced into the vagina as far as the os uteri. There was no tumor, however, except the one mentioned. There was no swelling in either groin, nor could any tumor be found on deep palpation in the iliac fossa.

The tumor gave rise to no pain, and it could be examined without discomfort to the patient. It was removed on June 28, 1885, by means of the galvano-cautery. The wound healed kindly by the 15th of July. Early in the following November the patient, who had become much emaciated, presented in the right groin (corresponding to the side of the ablated tumor) a distinct, uneven swelling of the ganglia. From this time on multiple tumors developed rapidly in various portions of the body. The woman's general condition became much worse. She walked with difficulty, lost her appetite, and presented every indication of a profoundly morbid state of the system. On the 17th of February, eight months after the operation, still more marked changes were observed. The discoloration had increased; the labia majora were swollen and oedematous; there were several small, prominent black nodules on the left labium minus, while the cicatrix of the operation was unaffected. The orifice of the urethra was invaded, and there was a blackish mass of the size of the little finger upon the posterior surface of the vagina. At this time the tumor in the right groin was of the size of the fist, uneven on its surface, and adherent to the deep tissues. The overlying skin was healthy, though somewhat thinned, and through it the ganglionic tumor presented a blackish color. In the left groin there were several small, hard, and isolated infiltrated ganglia. There was also a large indurated ganglion in the right subclaviicular fossa, and a nut-sized black tumor upon the integument of the back. The patient's general condition continued to be very bad; emaciation was great; the face was swollen, and the abdomen and legs swollen and oedematous. She grew worse and died March 6th, suffering from violent dyspnoea and severe abdominal pains. At the autopsy the inguinal, iliac, abdominal, and thoracic ganglia were found to be filled with a black substance, and some of them were of a pulpy consistence. The liver and spleen contained blackish nodules. Examination of the post-mortem specimens by Cornil showed generalized melanotic sarcoma.

CASE IV—Müller.—This case, which is entirely wanting in the details of age and clinical history, was taken from the private journal of Martin, of Berlin, after his death, by his assistant, Müller.

A tumor of the size of a goose-egg involving the clitoris was

removed by operation. The woman was too weak to undergo a second operation on the enlarged inguinal ganglia. She died twelve days after the operation. At the autopsy, melanotic sarcomata were found in the brain, lungs, pericardium, liver, spleen, kidneys, retro-uterine fossa, bladder, round ligaments, stomach, jejunum, and thyreoid, tracheal, bronchial, suprarenal, mesenteric, and inguinal ganglia.

It is not certain that the disease began upon the clitoris. The principle of "better late than never" seems to have guided the operator in this case.

CASE V—Haeckel.—A woman, aged sixty-nine, well nourished and strong for her age, was first seen April 9, 1887. She had had six children and two miscarriages. Eleven months previous to examination she had noticed a small tumor on the external genitals which gradually grew larger. Five months later the left inguinal ganglia became swollen, and five months after that those of the right side became affected. Her only complaint was of a sense of fullness in the vagina. Haeckel found a tumor of the size of a child's fist, of a dark-blue color streaked with white, which was seated on the whole of the left labium minus, on the clitoris, and on the upper part of the right nympha, and resembled a horseshoe with unequal shanks. The bluish-black new formation, which contrasted strongly with the color of the surrounding tissue, jutted into the left labium majus and in a less degree into the right one. There was a small nodule at the orifice of the urethra and two others between the left labium majus and minus. In the depth of the mons Veneris two hard cords were felt which were supposed to be the infiltrated crura of the clitoris. In the left groin there was a plum-sized mass of infiltrated ganglia and a smaller one on the right side. The left epitrochlear ganglion was enlarged. There were no abnormal pigmentations upon the body, and no pigmented nævi. An operation was performed by which all the vulvar mass and the fatty tissue of the mons Veneris and the infected ganglia were removed. The healing of the wound was rather slow. Ascites, icterus, oedema of the lower extremities, together with severe cachexia, developed, and the patient died five months after the operation.

CASE VI—Bailly.—A woman, aged seventy-two, of nervous temperament, had suffered from rheumatism prior to her sixtieth year, after which she was well. Ten months before examination she felt an indolent tumor of the size of a lentil in the thickness of the right labium minus near the clitoris. After remaining quiescent for rather less than a year, this tumor grew with great rapidity and became superficially ulcerated. Later on a tumor identical in structure and course appeared on the left labium minus externally and toward the fourchette, which obstructed the vaginal orifice. Patches of black pigmentation also were present on the vulva and in the vagina, which, owing to tenderness, was not accessible to examination. The tumor was ablated.

The history of this case was written a month after the operation, at which time the wound had not healed and there was no apparent ganglionic involvement; but the ominous statement is made that the patient presented a pinched and care-worn look, that she was growing thinner day by day, and that she kept her bed.

CASE VII—Fischer.—A woman, aged fifty-six, was first seen April 22, 1870. Five months before, a small swelling appeared upon the left labium majus, which grew to the size of a walnut, ulcerated, and bled. The corresponding inguinal ganglia became enlarged simultaneously with the appearance of the new growth. The tumor was ablated and the patient discharged, healed, in four weeks. A few weeks later a recurrent growth appeared upon the labium. Six months after the operation the inguinal ganglia became ulcerated, and the patient became weak and

died. It was thought that the irritation of a chronic leucorrhœa was a possible factor in causation.

Clinical History.—The mode of development of these melanotic tumors of the vulva is essentially the same as that of their congeners of dermal origin. In their course, however, the former present certain peculiarities and modifications which are ingrafted upon them by the highly vascular nature of the mucous membrane, and by the anatomical conformation of the parts. A knowledge of the clinical history of cutaneous sarcomata is of much aid in this study.*

Melanotic sarcoma of the vulva begins as a minute red or purplish spot seated in the deeper portions of the mucous membrane. This spot soon becomes a papule and then a nodule, a good example of which is shown in the chromolithograph in the smaller oval lesion just within the margin of the right labium majus and above the tumor proper. This nodule on a flat surface is of round or oval shape, but in a cleft like that of the labial sulcus it may be of linear shape (as it was at the inception of the disease in my case). On an anfractuous surface (near urethra, vaginal orifice, and fourchette) the shape of the lesion would be indefinite. The nodule being, as we may say, the well-developed lesion of the morbid process, its subsequent progress is readily traced. If it enlarges in area it produces at first sessile tumors, but if, as in my case, the morbid growth is very exuberant in an outward direction, a true pedunculated tumor may be the result, as shown in the colored plate.

When a larger extent of surface is involved we find sessile tumors of various sizes, which may be as large as the fist or a goose-egg, as in Göth's and Müller's cases; or, not

* In this connection it may be interesting to present the brief notes of cases of juxtapudendal melanotic tumors which are scattered throughout medical literature, and have passed current as vulvar tumors.

A tumor, in all probability of melanotic nature, was reported by J. Fergusson ("Recurrence of a Melanotic Tumor; Removal," "Lancet," 1851, vol. i, p. 622). A woman, aged forty-five, had a solid, movable tumor, of the size of an orange, in the right groin, extending from the iliac spine half way down Poupart's ligament. Two years previously she had a small pedunculated, bluish-black tumor on the right side of the mons Veneris. The skin over it ulcerated, and a fungous growth remained, which bled profusely. This was ablated and healing followed. The inguinal tumor (undoubtedly lymphatic in origin) was secondary to that of the mons Veneris. No microscopic examination was made, but the tumor was pronounced melanotic.

Fischer (*op. cit.*) reports the following case: A woman had had since her thirty-fourth year a blackish growth on the perineum. Prior to her fifty-fourth year, a tumor of the size of two fists, involving the left inguinal ganglia, appeared, which was extirpated. Eleven years after there was no recurrence.

Wagstaffe ("Pigmented Myxoma, Alveolated, removed from near the Labium Majus," "Trans. of the Path. Society of London," vol. xxiv, 1878, p. 167) reports the case of a woman, aged forty-two, having a conical tumor, of the size of a pigeon's egg, on the left labium majus, near the point of origin of the gracilis muscle, which began deeply in the connective tissue. It was pronounced to be of the type of myxomata and sarcomata.

It may be mentioned that melanotic growths of the uterus are very rare, and are usually of the form of melanotic sarcoma. Neither melanocarcinoma nor melanotic sarcoma has been found to originate primarily in the ovaries or vagina.

reaching this magnitude, they may merely jut up more or less from their bed, as they did in Terrillon's case. To the touch these tumors are firmer than sponge and less resistant than unvulcanized rubber; their density may be compared to that of a plum. Their surface may be smooth, or finely or coarsely lobulated. They appear to be composed of a homogeneous substance, and, in different shades of light, present black or blue tints, or a combination thereof. Though firmly adherent, motion or traction is readily produced. When very large, these tumors may become warty, or even fungous, upon their surface, and then from them exudes a bloody ichor (perhaps of offensive odor), and they may become more or less incrusted. Superficial ulceration from erosion may occur, and in this, as well as in the warty or fungating stage, haemorrhage, mild or severe, may occur. Central softening of the tumors may also take place, and foul and destructive ulcers may result. We are unable to say whether in this form of melano-sarcoma spontaneous absorption takes place, as it sometimes does in kindred skin lesions. From the fact that the connective tissue is sparse on the vulvar sites of these tumors, it is not probable that we shall see anything analogous to the subcutaneous nodules of cutaneous melano-sarcoma. Ablation of these tumors may or may not be followed by perfect healing.

From our present knowledge it may be stated that the progress of these malignant growths is sometimes slow and again quite rapid, while it is decidedly exuberant. This being the case in old subjects, it will be interesting to watch the course of the disease in younger ones should they present themselves.

In Terrillon's case a diffuse black pigmentation of the whole vaginal membrane, without any other form of hyperplasia, is mentioned.* This would seem to be analogous to the general bronzing of the skin which is sometimes seen in melano-sarcoma of the skin. It was also seen in Bailly's case.

The symptoms of melano-sarcoma of the vulva are decidedly mild. Early in their course they cause slight pruritus or smarting, and they may give rise to more or less haemorrhage. Later on they cause inconvenience by reason of their size. If developed near the urethra, they may act as impediments to urination, and if near the vulva, they may be very objectionable mechanical obstacles. In the stage of degeneration of the tumors they may cause much suffering and worry.

Such are the uncertain mode and course of the generalization of melano-sarcoma, like those of all malignant growths, that it is impossible to give a description of it, since in no two cases is it similar. The dissemination of the disease in this form is through the lymphatics, which lead directly to the viscera; therefore it is in these organs that we should expect to see the gravamen of the secondary infections. In skin sarcomata the malignant dissemination is through the vessels and lymphatics, and by contiguous infection; therefore we so constantly see new crops of the disease upon the cutaneous envelope. It is probable that in melano-sarcoma of the female and male genitals the skin will not be involved so early and so frequently as the lymphatic system and the viscera. It is to be noted, how-

ever, that in Terrillon's case, in addition to great visceral infiltration, a melano-sarcoma nodule was found upon the back.

In my case it is probable that the metastatic malignant new growth was seated in the lower part of the pons. From the absence of symptoms it is probable that there was not metastasis to any other organ.

The date of the generalization or metastasis of melano-sarcoma of the vulva, like that of the whole family of sarcomata, is uncertain. In Terrillon's case it began in the groin, in about eleven months, and in my case the appearance of the morbid nervous phenomena, about thirty months after the onset of the disease, gives weight to the view that secondary changes began in the brain about that time. But it must be remembered that the ganglionic enlargement began between a year and eighteen months after the onset of the disease. Since death occurred in Haeckel's case five months after the operation, in Fischer's case in six months, and in Bailly's case in all probability in a few months, it is fair to assume either that marasmus set in or that metastatic growths were developed. The cases of Göth and Müller give us no information on this subject.

In my case and that of Terrillon the age at which the malignant growth began was sixty years, and, though Göth fails to state it, it is evident, from his description, that his patient was beyond the middle period of life. Haeckel's patient was sixty years old, Bailly's was seventy-two, and Fischer's was the youngest on record, being fifty-six. The statistics of other forms of sarcomata prove that they are more prone to appear late than early in life, but the foregoing figures would seem to indicate a more uniform evolution of melano-sarcoma of the vulva in late periods of life. Thus Kaposi, speaking of skin sarcomata, places the date of invasion between forty and sixty-eight; Tanturri, according to Perrin,* between forty-three and sixty; and De Amicis, between the thirty-ninth and seventy-fourth years of life. Exceptions to these averages are not common. Köbner's case was that of a girl nine years old; Billroth's patient was ten years, and Perrin's twenty-two years of age—all the growths were skin sarcomata. It is probable that further statistics will place the period of invasion of sarcomata of mucous membranes in middle and old age.

Microscopical Examination.—The anatomical diagnosis in my case is small-spindle-celled melanotic sarcoma. The mottled black and gray pigments of the tumor consist of clusters of closely aggregated, small, spindle-shaped cells, lying in a scanty stroma. The epithelial investment of the vulvar region was not present in any of the sections. Both the stroma and the tumor cells contained granules and larger and smaller masses of brownish pigment (see Fig. 2). In some places the sections are comparatively free of pigment. In other places hardly anything else but masses of pigment can be seen. The examination and microscopic drawing were made by Dr. Ira Van Gieson.

In Göth's case the anatomical diagnosis was melanotic alveolar sarcoma.

In the tumor in Terrillon's case the round cells of

* "De la sarcomatose cutanée," Paris, 1886.

melano-sarcoma were found. Examination of the blood and urine showed the presence of minute blackish granules.

Microscopical examination of the tumor in Müller's, Haeckel's, and Bailly's cases showed melanotic sarcoma.

Aetiology.—There is nothing in the history of these cases which gives even a clew to the origin of this malignant new growth. From analogy with kindred skin lesions it may be inferred that any congenital lesion, particularly if pigmented, any structural defect of the parts, hereditary or acquired, or that irritation or traumatic causes, or simple hyperplasia, might serve as the starting point of it, but we have no positive knowledge.

Hildebrandt* speaks of the case of an old woman in which sarcoma of the vulva supervened upon the repeated cauterizations of some caruncles of the urethra with the actual cautery and acids. The lesson conveyed by it is that in old subjects these lesions should be excised rather than cauterized. Indeed, any irritated hyperplastic growth of the genitals of old women, or of those of middle age even, may take on a malignant nature; therefore they should be handled cautiously.† Leucorrhœa was looked upon as a possible causative factor in Fischer's case.

Taking an average of all the cases of sarcomata reported, it is found that they occur more frequently in males than in females.

Diagnosis.—So well marked are the features of melano-sarcoma of the vulva that their recognition is usually easy. A distinction may be necessary between it and melanotic carcinoma, which is prone to appear on cutaneous surfaces (the labia majora), or at their junction with mucous membranes; also on the skin of the extremities.

* "Die Krankheiten der äusseren weiblichen Genitalien," Billroth's "Handbuch der Frauenkrankheiten," Stuttgart, 1877.

† Cases of melano-carcinoma of the vulva are also rare, and are sometimes classed as sarcomas. The following have been reported:

Prescott Hewitt's case ("Melanosis of the Labium and Glands of the Groin," "Lancet," vol. i, 1861, p. 264) was that of a woman, aged fifty-nine, who observed a tumor on the anterior surface of the labium eight months before the operation. It was thought that it began upon a brown spot which had been there for years. The tumor grew rapidly, ulcerated, and bled freely. Though only palliative, the operation was radical, and included the removal of two or three black spots seated deeply in the wound. Two months later the disease reappeared *in situ*, and cerebral symptoms supervened, which led to the woman's death six months after the operation.

Klob ("Pathologische Anatomie der weiblichen Sexualorgane," 1864, p. 467, quoted by Haeckel) briefly mentions the case of an old woman who had a melano-carcinomatous nodule on the labium, and who died of a disseminated metastasis of the disease.

Müller (*op. cit.*, p. 447) reports the case of a nulliparous woman, aged thirty-three, who had a dark-blue, elastic, painless tumor, of walnut size, on the inner surface of the right labium majus, near the clitoris, which had grown rapidly within a few months. This tumor was quite well circumscribed, and became lost in the depth of the tissues, as far down as the pubic bone. It had not been preceded by a naevus-like growth. It was removed by deep incisions, the wound healing satisfactorily. Just after the operation the right inguinal ganglia became enlarged, but they afterward became normal. Three years after the operation the patient was well. Microscopic examination showed the tumor to be of a melano-carcinomatous nature.

In Kaposi's "Atlas der Syphilis" (Heft i, Taf. xii) will be found an excellent colored drawing of a melano-carcinoma of the external portion of the left labium majus.

Melanotic carcinoma has the general appearance of epithelioma; is often accompanied by small or large pigment deposits, and the initial nodule is soon followed by new ones in its vicinity. In its course it is more rapid than pigmented sarcoma of these parts. In general, the carcinomatous growths tend to burrow rather deeply, while the sarcomatous luxuriate upward. Kaposi says that a moderate amount of swelling and diffuse infiltration of the surrounding tissues may occur early in the disease. It is important to remember that melano-sarcomatous tumors may later on become warty or fungous on their surface, and that this feature appears early in the course of melano-carcinoma. It is of vital importance that the diagnosis should be made at an early date in this, as in all forms of cancer, since upon it depends the future of the patient.

Prognosis.—It has been tritely remarked that the invasion of mucous membranes by sarcomatous growths is a sign of evil omen. This statement made regarding secondary deposits in cases of cutaneous and visceral sarcomata is particularly true concerning those of the primary invasion of mucous membranes. In these very vascular structures the morbid growth is exuberant and the disease seems to take an especially firm hold upon them. Then, again, those portions* of mucous membranes upon which sarcomata, simple and pigmented, show a tendency to develop (the face and genitals), are in closely contiguous relation with large groups of lymphatic ganglia, which seem to be more readily infected than when the new growths are seated in the skin. In my case, and in that of Terrillon, death was induced in about two and three years, and in both the new growth reappeared within a few months after the removal of the initial tumor. Göth's case of freedom from the disease five months after the removal of the pigment sarcoma stands for nothing. It should have been reported five years after operation, rather than five months. The significant fact appears in Terrillon's report at the date of his operation, that the inguinal ganglia corresponding to the seat of the vulvar tumor were not perceptibly enlarged, and that, although the new growth did not reappear on that side, eight months later a ganglionic tumor, of the size of the fist, was found there.

And it may be added that in the literature of malignant new growths in general, the fact is not infrequently noted that a patient discharged cured after extirpation of the tumor returns later on, in months and even years, with infiltrated ganglia which, upon dismissal, had been thought to

* Mr. Jonathan Hutchinson—"Clinical Lectures and Reports of London Hospital" ("Cancer of Female Genitals"), London, 1865—speaking of epithelioma of the vulva, says: "The average length of life is scarcely longer than it is in the cases of medullary cancer of bones and testis, and it is very much shorter than what occurs in cancer of the breast. The explanation of the rapidity of progress is to be sought in the vascular condition of these parts, their rich endowment with lymphatics, and the early age of the patients attacked. We very often meet with cancer of the female genitals in patients under thirty, and I have observed it as early as twenty-four. In the young the processes of growth and absorption are much more rapid than in the old. Hence all varieties of cancerous action tend to be acute if occurring in comparatively young persons." Since melano-sarcoma of other parts has been observed in the young, it is possible that it may appear at earlier dates than it did in the six cases detailed in this essay.

be unaffected. In no case, therefore, where the tumor is removed and no enlargement of the ganglia is found, are we warranted in assuming that the patient will not have a recurrence in them or elsewhere.

In cases where the tumor is young, small, readily removable, and without ganglionic implication, a guarded and moderately hopeful prognosis may be given. When the new growth is old, large, and firmly fixed, and particularly when accompanied with lymphatic complication, the outlook is gloomy. Early enlargement of the ganglia is a serious symptom, and the late development of this condition inevitably brings death in its train. The death of my patient and of Terrillon's, at the end of about two years, together with that of Haeckel's and Fischer's within a few months, emphasizes its lesson.

Upon the fact that the sarcomata are more prone to form metastases through the medium of the vascular system than the carcinomata, which, as a rule, form metastases through the lymph channels, the greater malignity of the former depends.

Treatment.—It may, I think, be stated as an axiom that all sarcomatous growths of the vulva, simple or melanotic, being of such extreme malignancy, should be removed as quickly as possible. The sight and presence of these growths tend to demoralize the patient in mind and body; consequently, if there is a reasonable chance of subsequent healing, ablation should be performed. Though there is in all cases a probability of relapse *in situ*, and almost inevitably subsequent deposit in some part of the economy, the patient's comfort is greatly conserved by operation. My experience with these and other malignant forms of new growths of the vulva has convinced me that the best proceeding in general is to first remove the greater portion of the mass down near the skin level, and then to finish the operation by patient clipping and picking, by gentle gouging with the nails or with the handle of the scalpel, until all suspicious portions are removed. Such a course is far pref-

erable to the destructive cauterization, chemical and thermic, which is recommended by some. When in these cases the lumen of the urethra or vagina is invaded, the task of the surgeon is much more difficult and tiresome than when the tumors are seated on the labia alone. For some cases the galvano-cautery is applicable, for others the knife is required. The haemorrhage may be profuse, but it is readily controlled. Such is usually the woe-begone condition of these patients at the time of operation that the simultaneous removal of infiltrated ganglia is hardly warranted. The propriety of their subsequent removal must be left to the good sense and experience of the surgeon. If the ganglia are movable, and the mass is not too old, they may be removed. In my case, where the mass was as large as a goose-egg and firmly adherent to the fascia, an operation would have been simply foolhardy.

In these cases, where the outlook is uniformly so gloomy, all measures which offer a chance of future immunity should be tried. With the experience of Shattuck,* in his probable cure of a case of melano-sarcoma, and of Körner,† in his case of seemingly positive cure of a child similarly affected, in my mind, I began, at the first available opportunity, the use of hypodermatic injections of arsenic. This agent certainly did soften the mass and caused its partial absorption. Earlier in the history of the case it might possibly have been curative. The logical conclusion, therefore, to be derived from our present knowledge of the effect of arsenic on the sarcomata is that it should be administered hypodermatically, in full and increasing doses, as early and for as long a period as possible.

Though the outlook is inevitably fatal, there is a modicum of satisfaction in the assurance we can give the patient that, when perfect removal of the vulvar mass is practicable, she may thereafter be free from this hideous reminder of her doom.

* "Journal of the American Medical Association," July 4, 1885.

† "Berliner klin. Wochenschr.," No. 2, 1882.

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